CALIFORNIA ENERGY COMMISSION

STAFF ANALYSIS OF THE

PETITION TO AMEND THE DECISION FOR THE

ARGUS COGENERATION EXPANSION (ACE) PROJECT

Docket No. 86-AFC-1C

Prepared By

STEVE MUNRO
Compliance Project Manager

July 23, 1999

TABLE OF CONTENTS

CALIFORNIA ENERGY COMMISSION
STAFF ANALYSIS OF THE
PETITION TO AMEND THE DECISION FOR THE
ARGUS COGENERATION EXPANSION (ACE)
PROJECT
Docket No. 86-AFC-1C

GENERAL INTRODUCTION

ACE Cogeneration Company (ACC), the project owner, submitted a petition on February 4, 1999, to amend the Energy Commission Decision for its Argus Cogeneration Expansion (ACE) project. The proposed amendment would increase the maximum allowable number of solid fuel truck deliveries from 20 per day to 40 per day. It would also remove the current limit of an average of 10 trucks per day per month. No changes are requested for any existing air pollutant emission limits for the facility.

PROJECT HISTORY

The ACE facility was originally certified by the Energy Commission as a demonstration project to demonstrate the Circulating Fluidized Bed (CFB) technology for using coal in a specially-designed combustion boiler. The Application for Certification (AFC) to the Energy Commission for the facility was submitted on January 29, 1986, and approved by the full Commission in an order dated January 6, 1988. The demonstration portion of the project was ended by a resolution signed by the full Commission on June 8, 1994, in which ACC was commended for the conduct and success of the demonstration phase of the project, and full commercial operation of the facility was recognized. On April 29, 1998, the ACE project decision was amended by the Energy Commission to authorize the use of petroleum coke as an alternative fuel for the project, either unaggregated, or in combination with coal and/or natural gas. The 1998 amendment also included a condition to authorize delivery of solid fuel by truck, limiting truck deliveries to an average of ten per day with a maximum of 20 on any single day, with the balance of fuel deliveries by train.

PROJECT SETTING AND AMENDMENT REQUEST DESCRIPTION

The site of the ACE facility is in an industrial zone on the northern outskirts of the town of Trona, California. Trona is located in the eastern Mojave Desert on the edge of Searles Lake in the northeast corner of San Bernardino County. The responsible local air quality authority is the Mojave Desert Air Quality Management

District (MDAQMD). The IMC Chemicals, Inc. (IMC) facility immediately to the south is its cogeneration host. The facility provides 100 megawatts of electrical generation to the Southern California Edison transmission system using a CFB boiler and steam turbine generator, and provides 60,000 lbs/hr of process steam to IMC to power industrial equipment and operations.

There has been no net increase in criteria air pollutants from the preoperation period to operation of the ACE facility. This is because modifications were made to some of the processes at the preexisting Kerr-McGee chemical facility (currently IMC) which more than offset the emissions from the ACE facility. The result was a net reduction in combined emissions.

ACC is requesting an amendment to the ACE Project Commission Decision to revise Condition TRANS-7 to increase the maximum allowable number of deliveries of solid fuel (coal and/or petroleum coke) by truck from 20 per day to 40 per day and eliminate the current required average of 10 per day. ACC has stated that the purpose of the request is to allow the ACE Project to be able to supply up to 100 percent of its fuel by truck in the event of disruption of railroad deliveries of coal and to gain maximum fuel supply flexibility in order to remain a viable and competitive generator of electricity in the deregulated marketplace. The amendment would also allow for fuel deliveries by a combination of train and truck.

Commission staff recommends two new conditions of certification which require that ACC provide up to a total of $50,388 to the Desert Tortoise Preserve Committee to mitigate for potential losses of tortoises along part of the truck route due to the potential effects of 40 truck deliveries per day. However, since the project owner believes that the most probable number of truck deliveries of solid fuel to the ACE facility will not exceed an average of 20 per day per month, staff recommends a condition of certification requiring an initial payment of $25,194 as compensation. A second recommended condition of certification would require an additional $25,194 payment which would be due and payable if truck deliveries of solid fuel exceed 20 per day per month as specified in the recommended condition. (see the Biological Resources section of this staff analysis which follows). Commission staff recommends no other condition changes.

Aspects of the project setting or amendment description not discussed here, which relate to specific technical areas, are included in the analyses of those technical areas that follow.

SUMMARY OF STAFF ANALYSIS

SCOPE OF ANALYSIS

This staff analysis is based on a review of potential environmental and health and safety impacts which could result from the requested project change. Potential significant impacts were identified in only three technical areas: Air Quality, Biology,

and Traffic and Transportation. The following staff assessment sections have been prepared by technical staff to describe their analyses, conclusions and recommendations in these three areas with regard to conditions for approval of the amendment request. The scope of the analysis in each technical area is based on the extent and nature of the proposed changes to the project, as well as consideration of any potential cumulative impacts which might result.

STAFF REVIEW PROCESS

The Energy Commission's review process for proposed amendments is a CEQA equivalent, public process that involves several steps. In this case, beginning with receipt of the petition to amend from the project owner, staff notified the public and governmental agencies on the Energy Commission's project mailing list of the receipt of the amendment request. Staff requested additional information from the project owner, and based on all the information gathered from the project owner, government agencies and other sources, this staff analysis was developed.

CONCLUSIONS, FINDINGS AND MITIGATION MEASURES

Based on staff's analysis, and Energy Commission adoption of the proposed mitigation measures, staff concludes that the proposed changes will not result in any significant impact to public health and safety, or the environment. Following review of the petition to amend in all technical areas, Energy Commission staff find that:

1. There will be no new or additional unmitigated significant environmental impacts associated with the proposed changes.

2. The facility will remain in compliance with all applicable laws, ordinances, regulations, and standards.

3. The proposed modifications are beneficial to the public, the project owner, or the interest of any previous parties to the certification proceeding.

4. There has been a substantial change in circumstances since the Commission certification resulting in information that was not available to the parties prior to the Commission Decision. The specific change is introduction of a deregulated electricity market and the need for fuel transportation alternatives.

Staff’s proposed mitigation measures have been included in this staff analysis as proposed conditions. These proposed conditions are included in specific technical area analyses that follow.

AIR QUALITY

Matthew Layton

AIR QUALITY INTRODUCTION

ACE Cogeneration Company (ACC) is requesting a modification to their conditions of certification (ACC 1999) to increase solid fuel (coals and petroleum cokes) deliveries by truck. This will expand their fuel options and allow them to maintain project operation during any potential railway fuel delivery disruptions. ACC is not requesting a change in their criteria air pollutant emission limits, nor do they expect the broader range of potential fuels and fuel mixes to increase criteria air pollutant emission rates from the project.

ACC is proposing to increase the maximum allowable number of deliveries of solid fuel (coal and/or petroleum coke) by truck from 20 per day to 40 per day and eliminate the current required average of 10 per day. The trucks will either deliver coal to the existing dead storage pile, or solid fuels to the existing coal barn, or some other dedicated, yet to be built, solid fuel truck delivery facility. Staff's primary concern is the increase of fugitive dust emissions from solid fuel handling, as well as additional air pollutant emissions from the trucks.

AIR QUALITY SETTING

Prevailing winds at the site are generally from the north to the northeast, and from the south-southwest to the south-southeast, paralleling the orientation of Searles Valley. Rainfall is light year round, averaging less than 0.50 inches most months (CEC 1987).

OZONE

The Mojave Desert Air Quality Management District (District) is classified as non-attainment for both the federal and state 1-hour ozone standards (CARB 1998). The District is responsible for reaching attainment of the ozone standards through the implementation of control measures for ozone precursors (nitrogen oxides (NO_x) and reactive organic compound (ROC) emissions) for stationary and area sources. The California Air Resources Board (CARB) is responsible for developing and implementing control measures for mobile source ozone precursor emissions.

PARTICULATE MATTER LESS THAN 10 MICRONS (PM10)

The District is classified as non-attainment for the state 24-hour PM10 (particulate matter less than 10 microns) standards. The District is classified as attainment for the federal 24-hour PM10 standard, and both the state and federal annual PM10 standards (CARB 1998). The District is responsible for reaching attainment of the state 24-hour PM10 standard through the implementation of PM10 and PM10

precursor control measures for stationary and area sources. CARB is responsible for developing and implementing control measures for mobile source PM10 and PM10 precursor emissions.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The proposed changes cause direct (vehicle emissions) and indirect (fugitive dust) air quality impacts. Vehicle emissions are subject to CARB rules and regulations. Fugitive dust emissions are controlled by the District under Rules 402, Nuisance, and 403, Fugitive Dust (MDAQMD 1998).

ANALYSIS

COAL/COKE TRUCK DELIVERIES

ACC is proposing to increase the number of permitted fuel truck deliveries up to a level that would provide their potential daily fuel use. They are proposing 40 trucks per day maximum, because ACC has, in the past, experienced interruptions of railway coal deliveries. ACC believes that future railway delays could occur, thereby affecting their coal or solid fuel deliveries and the operation of the project.

ACC anticipates that they will be able to purchase solid fuel from alternate suppliers at reduced costs compared to their existing long-term contract for coal that is delivered by train. However, they believe that bringing in more than 50 percent (***i.e.,*** greater than 20 trucks per day per month) of their daily fuel supply from alternate fuel suppliers is unlikely for the following reasons:

- These types of circulating fluidized bed boilers appear to operate best at petroleum coke/coal ratios of not greater than 50 percent (ACC 1999). Petroleum coke is the most likely fuel alternative to existing contract coal.
- ACC believes that there are security benefits to maintaining their long-term coal contract at some level. The coal would continue to be regularly delivered to the project via dedicated unit trains.
- Train delivery disruptions, while planned for as a contingency, are not likely to continue to occur given that the merger between Union Pacific and Southern Pacific appears to be complete.

Additionally, staff believes that the logistics of loading, coordinating, and unloading 40 trucks per days on a regular basis would be difficult for the fuel suppliers or ACC to maintain for extended periods, for the following reasons:

- It is likely that there will be other solid fuel contracts at the supplier's end competing for solid fuel, personnel, and trucks, and
- It is likely that coal train deliveries for both the ACC boiler and the IMC boilers (two pulverized coal boilers adjacent to ACC) will continue during truck deliveries, competing for unloading and handling personnel resources.

Therefore, staff believes that the reasonable worst case (or most likely scenario) for an air quality analysis, is the average of 20 trucks per day per month. However, ACC is requesting permitting for the maximum of 40 trucks per day to be able to react to any unanticipated railway delivery disruptions or large supplies of inexpensive spot market fuel.

The trucks will deliver coal to the existing ACE project dead storage coal pile, and coal and petroleum cokes to active solid fuel reclaim piles located in enclosed structures (ACC 1998). ACC is not proposing truck delivery to, or storage of a solid fuel in, any active fuel piles that are not in enclosed structures. ACC will be transporting solid fuel in covered trucks to minimize fugitive dust emissions. When augmenting the dead storage coal pile, existing fugitive dust suppression and control methods will be employed to wet the coal while handling it, and compress and chemically seal the pile daily when deliveries are made. Solid fuel truck deliveries to the active solid fuel piles ("daily" fuel supply) will be unloaded in enclosed structures that use fugitive dust control equipment and systems. These measures are directed toward maintaining compliance with District Rules 402, Nuisance, and 403, Fugitive Dust (MDAQMD 1998).

In the original Commission Decision, Air Quality Condition No. 54 specified no more than one unit coal train could operate in the air basin during any one calendar day. This included coal train deliveries to both the ACE project and the adjacent IMC Argus boilers 25 and 26. Truck fuel deliveries were not considered in the analysis. Because the train deliveries may or may not still be subject to intermittent delays, it is reasonable to expect there will be situations in which coal train deliveries and truck deliveries would occur on the same day. Therefore, the reasonable worst case scenario from a solid fuel delivery system vehicle emission standpoint is to consider the average truck air pollutant emissions in addition to the coal train air pollutant emissions.

Because the District is non-attainment for two short-term (the 1-hr ozone and the 24-hr PM10) state standards, we are interested in the change in daily air pollutant emissions from the delivery of solid fuel to the ACE project. Air Quality Table 1 shows the daily train air pollutant emissions and the potential truck air pollutant emissions. Again, we are assuming the average of 20 trucks per day as the most probable case, rather that the maximum of 40 trucks per day. The truck emissions, shown in Air Quality Table 1, are based a 120 mile round trip from the western border of the Southeast Desert air basin, which would cover coal and petroleum coke deliveries from the Bakersfield refineries and train terminals, and petroleum coke from the Santa Maria region refineries.

As can be seen in Air Quality Table 1, daily emissions of the combined train and truck deliveries do increase. However, this reasonable worst case "daily" scenario (20 trucks per day per month) would only occur once every seven days given the normal train delivery, and every 3 to 5 days when including coal train deliveries to the IMC

facility next door. On most days, solid fuel delivery system daily emissions will be significantly less than those daily emissions considered in the original decision since only trucks would be operating.

Additionally, the potential increases in emissions are insignificant when compared to the hourly and daily emissions from the ACE boiler. For example, the ACE boiler is permitted at 104 lbs. NO_x/hour, but consistently operates at 60 to 80 lbs. NO_x /hour (ACC 1993). Since the ACE boiler was fully offset at the 104 lbs./hour level, the operation of the ACE boiler consistently reduces NO_x emissions to levels below that which was offset, on the order of 20 to 40 lbs./hour. Therefore, for this example pollutant, during normal boiler operation and the use of up to 40 trucks per day, the daily NO_x emission inventory is less than before the ACE project was built.

Air Quality Table 1 - Solid Fuel Delivery Vehicles

Pollutant	Train Delivery lbs./day (a)	20 Truck Deliveries lbs./day	40 Truck Deliveries lbs./day	Total lbs./day (b)
NO_x	317.5	48.8	97.6	366.3
CO	111.5	31.8	63.6	143.3
VOC	91.3	4.6	9.2	95.9
PM10	21.5	1.6	3.2	23.1
SO_2	48.9	3.8	7.6	52.7

a. Since ACC only expects one train per week, and only one train per day is allowed in the air basin, these "weekly" train emissions are, in effect, the daily ACE project coal delivery emissions.

b. Based on an average of 20 solid fuel delivery trucks per day per month.

Source: KMCC 1986, ACC 1999

CONCLUSIONS AND RECOMMENDATIONS

ACC will be trucking solid fuel in covered trucks, which will minimize fugitive dust emissions. When augmenting the dead storage coal pile, existing fugitive dust suppression and control methods will be employed to wet the coal while handling it, and compress and chemically seal the dead storage pile daily. Solid fuel truck deliveries to any active solid fuel piles will be unloaded in enclosed structures that use fugitive dust control equipment and systems. Any active fuel piles will be located in enclosed structures with operating fugitive dust suppression and control equipment.

Fugitive dust emissions from solid fuel truck deliveries are not expected to be significant. No additional mitigation measures are recommended.

Air pollutant emissions from the requested increase in deliveries of solid fuel to the ACE project will not change significantly. The proposed amendment to Condition TRANS-7 (see Transportation section) reflects the proposed truck limit. No additional air quality mitigation measures are recommended.

REFERENCES

ACE Cogeneration Company (ACC) 1993, Argus Cogeneration Expansion Project Semi-annual Demonstration Report Nos. 1 - 6, (Docket No. 86-AFC-1C), March 1990 through December 1993.

ACE Cogeneration Company (ACC) 1998, Letter from Mr. Zenis Walley, A/C Power-ACE Operations to Mr. Steve Munro, Energy Commission (Docket No. 86-AFC-1C), March 6, 1998.

ACE Cogeneration Company (ACC) 1999, Letter from Mr. Zenis Walley, A/C Power-ACE Operations to Mr. Steve Munro, Energy Commission (Docket No. 86-AFC-1C), February 4, 1999.

California Air Resources Board (CARB). 1998. Proposed Amendments to the Designation Criteria and Amendments to the Area Designation for State Ambient Air Quality Standards and Proposed Maps of the Area Designations for the State and National Ambient Air Quality Standards, August 1998.

California Energy Commission (CEC) 1987 Amendment to the March 1987 Final Staff Assessment of the Kerr-McGee Chemical Corporation's Argus Cogeneration Expansion (ACE) Project, California Energy Commission, August 1987, (Docket No. 86-AFC-1).

Kerr-McGee Chemical Corporation (KMCC) 1986, Application for Certification Argus Cogeneration Expansion Project, May 1986.

Mojave Desert Air Quality Management District, (MDAQMD) 1998, MDAQMD Rules and Regulations, Mojave Desert Air Quality Management District, 1998.

BIOLOGICAL RESOURCES

Linda Spiegel

BIOLOGICAL RESOURCES INTRODUCTION

The proposed amendment would provide for a maximum of 40 trucks (80 truck trips) per day to deliver solid fuel from the City of Wasco or Bakersfield to the ACE facility in Trona. This results in the potential for increased vehicular-caused mortality to desert tortoises (***Gopherus agassizii***) and Mohave ground squirrels (***Spermophilus mohavensis***) on roads within suitable habitat for these listed species. Train delivery of solid fuel would still occur, but be reduced from approximately one train per five days to one train per seven days.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Endangered Species Act of 1973: Title 16 of the United States Code (USC), section 1531 et seq., 50 code of Federal Regulations (CFR) 17.1 et seq., designates and provides for protection of threatened and endangered plant and animal species and their critical habitat.

STATE

California Endangered Species Act of 1984: Fish and Game Code sections 2050 through 2098, protects California's rare, threatened and endangered species.

ANALYSIS

The route used to deliver solid fuel enters desert tortoise and Mohave ground squirrel habitat along Highway 58 as it enters the western Mojave Desert. The tortoise is a California state and federally listed threatened species. The ground squirrel is a California state listed threatened species.

MOHAVE GROUND SQUIRREL

The Mohave ground squirrel is a medium-sized ground squirrel, about half the length of the more familiar and widespread California ground squirrel (***S. Beecheyi***). The Mohave ground squirrel spends about seven months of the year, usually from August to February, in underground burrows in estivation. This distinct species is endemic to California and occurs in the Mojave Desert, generally west of the Mohave River, at elevations up to abut 5600 feet in all desert scrub plant communities within its range.

Major threats to the survival of the Mohave ground squirrel are drought and habitat destruction, fragmentation and degradation. There is no evidence to suggest that

vehicle-related mortality is significantly reducing populations. However, it is known that the Mohave ground squirrel is killed by vehicles (Gustafson 1993).

DESERT TORTOISE[1]

The desert tortoise occurs in the Mojave and Sonoran deserts in southern California, southern Nevada, Arizona, and southwestern Utah, and Sonora and northern Sinaloa, Mexico. Desert tortoises spend much of their lives in burrows, emerging during late winter and spring, and often after summer storms. The Mojave population occurs north and west of the Colorado River and is listed as federally and state threatened due to rapidly declining populations ranging between three and 59% per year. These declines are attributed to direct take by humans, habitat loss, degradation, and fragmentation, diseases and recent drought. Populations in areas with a high incidence of human-caused mortality exhibit greatest declines. Highway mortalities have critical negative impacts on populations and tortoise populations become depleted up to a mile or more on either side of roads that receive average daily traffic greater than 180 vehicles. Railroads also cause tortoise mortality when individuals get caught between the tracks. Most deaths from tortoises caught between railroad tracks are from heat exposure or starvation, but some are crushed by trains.

Specific desert tortoise habitat categories were developed by the Bureau of Land Management and based on desert tortoise density, importance of habitat to maintaining viable populations, resolvability of conflicts, and population status. These categories range from I, the most important, to III. All three categories exist within the area under analysis; Category I habitat is located directly south of Red Rock-Randsburg Road and Garlock Road. The route is also within designated critical habitat for the desert tortoise (DTRT 1994a, Appendix H).

Desert tortoise populations are grouped by distinct Evolutionarily Significant Units (ESU), which is defined as a population or group of populations that represent significant adaptive variation within a species. The ESU under consideration for this analysis is known as the Western Mohave Recovery Unit. Within these ESU's, Desert Wildlife Management Areas (DWMAs) have been identified, along with recovery actions specific to the area. The DWMA under consideration for this analysis is the Fremont-Kramer DWMA, which has tortoise densities between 5-100 per square mile. The Fremont-Kramer DWMA is one of the most threatened DWMAs and has experienced population declines up to 90% between the 1970's and 1980's (DTRT 1994b). The population is in immediate danger of extirpation unless action is taken to halt present declines (DTRT 1994b).

Highways and roadways within the Fremont-Kramer DWMA that are currently significant sources of mortality include Highway 395, Highway 58, Red Rock-

1 All information for this text was gathered from the 1994 Desert Tortoise (Mojave Population) Recovery Plan unless otherwise referenced.

Randsburg Road, and Red Rock-Garlock Road (DTRT 1994b). Mortality risk would be reduced if these were appropriately fenced and fitted with tortoise underpasses (DTRT 1994b). Installation of such structures have reduced tortoise mortality along portions of Highway 58 (Sazaki et al. 1995)

IMPACTS

ACE has submitted a Desert Tortoise Impact Study (Tom Dodson & Associates 1998) and a subsequent letter (Tom Dodson & Associates 1999a) which reviewed the analysis and conclusions provided in the impact study (Appendix A). Dodson's analysis involved calculations based on data from Boarman et al. (1993) cited in LaRue (1993), that reported 13 tortoise carcasses found within a 15-mile stretch of Highway 395 over a 15-month period. Using Average Daily Trips data for Highway 395 of 3,735 vehicle trips per day and a distance of 4.6 miles (69 mile route divided by the 15 mile study area), Dodson concluded that each individual coal truck has a 0.3% chance of striking a desert tortoise (and by extrapolation due to the lack of data, also the Mohave ground squirrel). Dodson further concluded that because 1) this chance (0.3%) is low, 2) the routes are outside of desert tortoise critical habitat or management areas, and 3) the Desert Tortoise Recovery Plan "specifically takes into account the continued loss of tortoises along major roads as part of its designation of critical habitat and long-term recovery of the tortoise" (Referenced as page 58 of The Recovery Plan in Tom Dodson & Associates 1999a), the proposed project would not result in impacts nor require mitigation.

Staff disagrees with this conclusion for the following reasons:

· The study cited, Boarman (1993), involved two checks separated by a 15-month period and was not conducted over 15 months. The value of thirteen tortoise carcasses does not take into account scavenging and other forms of removal and represents an absolute minimum number. This study was located along Highway 395, which receives much greater traffic and supports greater densities of tortoises, but, has, inherently, depleted tortoise populations on either side of the road.

· Using the 0.3% chance an individual truck trip would strike a tortoise, one could assume that there would be a tortoise death for every 333 truck trips (1 truck trip per .003 tortoise deaths). At 80 truck trips a day, one tortoise could be killed every 4.16 days (333 trucks per tortoise death divided by 80 truck trips per day). Over an eight-month period (the average period tortoises may be above ground during a year), or 240 days, a total of 57.7 tortoises could be struck by a truck delivering coal to the ACE facility. This figure is unquestionably an overestimate, but shows that the analysis provided in the Desert Tortoise Impact Study does not support the conclusion that the proposed project will have no impact to tortoises or Mohave ground squirrels.

In a subsequent correspondence by Tom Dodson and Associates (1999b), the data was further analyzed to derive estimates of between one tortoise death per year

(entire route) to one every 5.38 years (route through critical habitat) as a result of the ACE proposal. However, staff and others (tortoise biologists, E. LaRue and M. Sazaki, pers. comm. 1999) feel these calculations are based on an inappropriate use of the Boarman (1993) data.

Due to the lack of definitive data, the number of tortoise mortalities that would result from the 80-truck trips is impossible to determine. The facts documented in studies conducted to date (Nicholson 1978, Berry and Turner 1984, Berry et al. 1986, Boarman et al. 1993, LaRue 1993) indicate that vehicle use of roadways is an important cause of tortoise mortality. The Desert Tortoise Recovery Plan acknowledges impacts posed by vehicles as a significant detriment to tortoise populations (DTRT 1994a, pages 6, 10, 51, 58, D3, D8, D12, F29). Further, portions of the proposed route, specifically Red-Rock Randsburg and Red-Rock Garlock Roads, have been identified as significant sources of tortoise mortality (DTRT 1994b, page 67). Dayak (pers comm 1999) has observed several live and dead tortoises where the Randsburg and Garlock Roads meet Highway 395. Nicholson (1978) reported that tortoise populations become depleted on either side of roads that receive an ADT greater than 180 vehicles. Therefore, staff concludes that increases in road use as proposed by the amendment will cause an additive adverse affect to current levels of impacts by increasing vehicle-related tortoise mortalities.

Staff also believes that the reduction in rail traffic would not offset potential impacts to tortoises from the increase in truck traffic. The increase in coal delivery by truck could result in a decrease in coal delivery by rail. Railroads are known mortality source of tortoises; however, most kills are associated with the presence of the tracks rather than the train (M. Sazaki, pers. comm. 1999). Tortoises that get caught between the tracks are subject to overexposure due to the lack of borrows, or to starvation. Tortoises that are located on the portion of the tracks that carries the train during the time a train passes are crushed. Tortoises located on the portion of the tracks lying parallel to the direction of train travel may be safely passed over by the train.

The Desert Tortoise Recovery Plan repeatedly states the need to reduce vehicle-related impacts by installing fences and underpasses along specified roads and highways (DTRT 1994a,1994b). Specific management actions identified for the Fremont-Kramer DWMA calls for the installation of barriers and culverts (underpasses) along the Red Rock-Randsburg Road and the Red Rock-Garlock Road (DTRT 1994b). Past projects that have mitigated increases in traffic on roads located within desert tortoise habitat by installing fences along roadways include LUZ Solar Energy Generating System and the Eagle Mountain Land Fill.

To determine appropriate mitigation for the potential impacts from a cumulative increase in traffic caused by the project amendment, staff used the proportional increase in traffic as a result of this proposal. The length of the truck route through tortoise habitat is 69 miles. The area of greatest impact will occur along the 19-mile

stretch of Red Rock-Randsburg Road and Red Rock-Garlock Road that borders critical tortoise habitat. This route has an average of 1000 vehicle trips per day (Hernandez, Kroone & Associates 1998). Increasing the trips by 80 would represent a 7.4% increase in daily vehicle traffic along this road.

Fencing is the principal method used to reduce vehicle related desert tortoise mortalities. Material and labor for desert tortoise fencing costs $3.35 per linear foot and $325.00 per gate. Fencing the equivalent of both sides of Red Rock-Randsburg and Garlock Roads would require 200,640 linear feet (38 miles x 5280 feet/mile). Therefore, the fencing cost for the entire road is $672,144. Multiplying this by the 7.4% increase in daily traffic that will occur as a result of the project yields a cost of $ 49,738 (.074 x $672,144). Adding a gate on either side of the road (2 x $325) yields a total mitigation cost of $50,388.

While the proposed amendment requests permitting for a maximum of 40 trucks per day, ACC believes that an average of 20 trucks (40-truck trips) per day per month will be the most likely scenario (ACC 1999, Layton 1999). Should this be the case, the percent increase in traffic along the Red Rock-Randsburg and Red Rock-Garlock Roads would decrease by 50%. Accordingly, mitigation costs would be reduced to $ 25,194.

CONCLUSIONS AND RECOMMENDATIONS

Based on the information provided above, staff concludes that the proposed project will result in a potentially significant adverse impact to desert tortoise populations by contributing in a cumulative manner, to existing detrimental effects of vehicular traffic along roadways within desert tortoise habitats. This impact may be greatest along the Red Rock-Randsburg and Garlock Roads, which is within critical habitat, and directly adjacent to the Fremont-Kramer Desert Wildlife Management Area and Desert Tortoise Category I habitat.

Staff recommends that this impact be mitigated to less than significant levels by requiring ACE to contribute funds to the Desert Tortoise Preserve Committee (DTPC). The funds will be held for the purpose of constructing fencing and/or underpasses for roads within the Fremont-Kramer DWMA as determined by DTPC, in consultation with USFWS. This is accordance with recovery strategies identified in Desert Tortoise Recovery Plan, to require such installations for the long-term protection of desert tortoise populations.

MITIGATION MEASURES AND CONDITIONS

The following conditions are being proposed to implement ACE's request for a maximum of 40 truck deliveries per day of solid fuel to the ACE facility in addition to the rail deliveries.

BIO-14 The project owner shall provide a non-refundable check, money order, or other financial conveyance document for $25,194 to the Desert Tortoise Preserve Committee to secure and construct tortoise fencing and/or underpasses in the

Fremont-Kramer Desert Wildlife Management Area. These funds may also be used in the Fremont-Kramer Desert Wildlife Management Area for acquisition of right-of-ways, easements, and real property (fee title) necessary to install fencing and/or underpasses, architectural and engineering fees, cadastral and construction surveys, biological monitoring, construction management, and maintenance and repair expenses related to fencing and/or underpasses.

Verification: Within 30 (thirty) days after the Commission Order authorizing this condition is signed, the project owner shall provide to the CPM a copy of the check, money order, or other financial conveyance document delivered to the Desert Tortoise Preserve Committee.

BIO-15 The project owner shall maintain a daily log of truck deliveries of solid fuel to the ACE facility. Based on the daily log, the project owner shall provide to the CPM annual reports that document the number of daily truck deliveries of solid fuel to the ACE facility during March through October. If the daily log indicates that the daily average number of truck deliveries is greater than 20 during any three of the eight months of March through October during a calendar year, monitoring reports will no longer be necessary and the project owner shall provide an additional, one-time, non-refundable sum of $25,194 to the Desert Tortoise Preserve Committee to secure and construct tortoise fencing and/or underpasses in the Fremont-Kramer Desert Wildlife Management Area. The daily average number of truck deliveries shall be determined to exceed an average of 20 in any 30-day month when deliveries exceed 600 or in any 31-day month when deliveries exceed 620.

Verification: The project owner shall submit to the CPM a copy of the monthly truck delivery report during November of each year. Within thirty (30) days after the third month in which the allowable number of truck deliveries is exceeded, which triggers the additional payment, the project owner shall transfer the required sum of $25,194 to the Desert Tortoise Preserve Committee. A copy of the financial payment document shall be sent to the CPM within ten (10) days of payment.

REFERENCES

Berry, K.H. and F.B. Turnet. 1984. Notes on the behavior and habitat preferences of juvenile desert tortoises (***Gopherus agassizii***). Proceedings of Symposium Desert Tortoise Council: Pages 111-130.

Berry, K.H., T. Shields, A.P. Woodman, T. Campbell, J. Robertson, K. Bohuski, and A. Karl. 1986. Changes in desert tortoise populations at the Desert Tortoise Research Natural Area between 1979 and 1985. Proceedings of Symposium Desert Tortoise Council: 1986:100-123.

Boarman, W.I., M. Sazaki, K.H. Berry, G.O. Goodlett, W.B.Jennings and A.P.Woodman. 1993. Measuring the effectiveness of a tortoise-proof fence and culverts: status report from first field season. Proceedings of Symposium Desert Tortoise Council: 1982:126-142.

Dayak, T. 1999. Personal Communication on April 6. California Department of Transportation, Bishop, CA.

Desert Tortoise Recovery Team. 1994a. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service. Portland, OR. 73 pp and appendices.

Desert Tortoise Recovery Team. 1994b. Proposed desert wildlife management areas for recovery of the Mohave population of the desert tortoise. U.S. Fish and Wildlife Service, Portland, Oregon. 100 pp.

J.R. Gustafson. 1993. Report to the Fish and Game Commission: A status review of the Mohave ground squirrel (Spermophilus mohavensis). California Department of Fish and Game, Nongame Bird and Mammal Section Report 93-9.

Hernandez, Kroone & Associates. 1998. Traffic impact study for ACE Cogeneration Company. San Bernardino, CA. 20 pp.

LaRue, E.L. 1993. Distribution of desert tortoise sign adjacent to Highway 395, San Bernardino, CA. Proceedings of Symposium Desert Tortoise Council. 1992:190-204.

LaRue, E.L. 1999. Personal Communication with Ed LaRue, Circle Mountain Consultants, Wrightwood, CA on March 30 and April 6.

Layton, M. 1999. Air Quality Resources Analysis. ACE Amendent, this document.

Nicholson, L. 1978. The effects of roads on desert tortoise populations. Proceedings of Symposium Desert Tortoise Council. 1978:127-129.

Sazaki, M. 1999. Personal Communication on February 25. California Energy Commission. Sacramento, CA.

Sazaki, M., W.I. Boarman, G. Goodlett, and T. Okamoto. 1995. Risk associated with long-distance movements by desert tortoises. Proceedings of Symposium Desert Tortoise Council. 1984:33-48.

Tom Dodson and Associates. 1998. Desert tortoise impact study for ACE Cogeneration Company. San Bernardino, CA. 6 pp.

Tom Dodson and Associates. 1999a. Letter to Zenis Walley dated January 31. 2 pp.

Tom Dodson and Associates. 1999b. Memorandum to Linda Spiegel on March 18.

TRAFFIC AND TRANSPORTATION

David Flores

TRAFFIC AND TRANSPORTATION INTRODUCTION

SETTING

The proposed amendment as submitted by ACE Cogeneration Company (ACE) would provide for a maximum of 40 solid fuel deliveries per day by truck using regional highways in addition to rail delivery. This results in the potential for increased traffic congestion and vehicular accidents, which are discussed below.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

STATE

California Vehicle Code section 35780; Streets and Highways Code, 660-711; Title 21 CAC sections 1411.1-411.6 state that overload approvals from the State Department of Transportation are required for transportation of excessive loads over state highways.

LOCAL

California Vehicle Code, section 35000 et seq. states that a Moving Permit from the San Bernardino County Department of Transportation is required if vehicles exceed legal limits of length, width, height, or weight.

California Vehicle Code section 35780; Streets and Highways Code, 660-711, states that a Transportation Permit from Kern County Public Works, Roads Department is required if vehicles exceed legal limits of length, width, height, or weight.

ANALYSIS

In January 1998, the applicant submitted a traffic study that analyzed the potential traffic impacts of the delivery of 10 trucks of coal by truck from Savage Industries in Wasco to the ACE power plant site in Trona, California. The study was required as part of a petition filed by the applicant seeking a number of changes to conditions established under their original application approved by the Energy Commission in 1986 (86-AFC-1C). The amendment became known as the “Flexible Fuels Amendment” as the Commission allowed the use of any combination of coal, petroleum coke and/or natural gas as fuel to the power plant. As part of the Commission approval, an average of 10 truck deliveries per day was approved.

The 1998 traffic study also analyzed a scenario for the delivery of 40 trucks per day from the Wasco area to the ACE power plant site. The amendment was filed with the Energy Commission on February 5, 1999, and requested an increase in the maximum allowable number of deliveries of solid fuel by truck from 20 per day to 40 per day and elimination of the current required average of 10 per day. With the allowable truck delivery increase, this will allow ACE to receive 100 percent of its solid fuel supply by truck if necessary.

With the use of petroleum coke, delivery of the solid fuel would be from a plant in Bakersfield and would follow the same truck route as with the delivery of coal to the plant site in Trona. The roadway segments for the truck route and alternate route were analyzed in the previous amendment but are discussed in this report to reaffirm the facts and conclusions of the report, and that they remain valid for this request. The truck route and alternate route were analyzed for:

- Current capacity;
- Current level of service;
- Level of service with the addition of project traffic; and
- Roadway accidents on the non-freeway facilities.

The Traffic Impact Study analyzed the potential impacts of 1) an average of 10 trucks per day, or 2) a maximum of 40 trucks per day. Traffic data contained in the Traffic Impact Study was acquired from each of the local jurisdictions and the California Department of Transportation (CALTRANS), both at the local offices and headquarters office in Sacramento. Each agency provided Average Daily Traffic, AM and PM peak hour volumes and time periods, 24 hour - one hour intervals of field counts taken at various times of the year, information or traffic data relative to seasonal variations during the year, truck percentages and accident data.

Various agencies such as CALTRANS, the California Highway Patrol, San Bernardino County, Kern County, the San Bernardino Sheriff's Department and the City of Wasco reviewed the Traffic Impact Study and specifically responded to the following issues:

- Has the traffic study adequately addressed the issue of potential traffic impacts from the delivery of 10 to 40 trucks?
- Does the reviewing agency concur with the study's conclusion that the maximum of 40 trucks per day will not have any significant impact on the designated transportation routes?
- Does the reviewing agency concur with the study's accident analysis and conclusion that either an average of 10 trucks per day, or a maximum of 40

trucks per day associated with the ACE fuel delivery will not have a significant impact on accidents along the designated transportation routes?

In commenting on the January 1998 traffic study, all agencies contacted responded that they had no concerns with the study, which would allow 10 to 40 trucks per day. The only exception was the City of Wasco, which had some concern with 40 trucks maximum per day. The City of Wasco requested the opportunity to review the study again when ACE applied with the Energy Commission to receive authorization to operate 40 trucks per day. In a letter dated February 2, 1999, the City of Wasco indicated they had no concerns with the study based on the fact that no substantial changes in traffic patterns or volumes have occurred in the surrounding area since the traffic study was written.

PROPOSED ROUTE

The proposed route begins at Savage Industries, located at the northwest corner of the Poso Road / Central Valley Highway intersection. Trucks exit Savage Industries onto Poso Road and then head south on Central Valley Highway to Kimberlina Road and then to Highway 99. This portion of the route (from Savage Industries to Highway 99) is under the jurisdiction of the City of Wasco and Kern County. The truck route from Highway 99 near Wasco to Highway 58 to northeast of Mojave varies from a four-lane freeway to a two-lane freeway and is under the jurisdiction of the California Department of Transportation (CALTRANS). The trucks exit from Highway 58 at Randsburg Cutoff / California City Boulevard north of Mojave. The trucks travel on Randsburg Cutoff for about four miles to Highway 14. At Highway 14, the trucks travel north about 16 miles to Garlock Road and then to Highway 395. Traveling north on Highway 395, the trucks travel to Searles Station Cutoff to east on Highway 178. From Highway 178, the trucks travel to First Street in Trona to the ACE facility.

An alternate truck route that bypasses Redrock Randsburg Road and continues straight on Highway 14 to 178 was analyzed also. During winter months, Redrock Randsburg Road and Garlock Road may be damaged or washed away by storms. The alternate route may be utilized for those times when repairs to the proposed route are being made.

As indicated earlier in the report, with the use of petroleum coke, delivery of the solid fuel would be from a plant in Bakersfield and would follow the same truck route as with the delivery of coal to the plant site in Trona.

LEVEL OF SERVICE (LOS)

For CALTRANS facilities, LOS “D” is an acceptable performance level. For most cities and counties, LOS “C” is the lowest acceptable level of service. Any rating below the established criteria would require mitigation.

The LOS analysis was performed at 16 locations (refer to Locations of Level of Service Analysis, Traffic Impact Study). With the addition of 40 truck trips, the

existing LOS was maintained for each location (none having a LOS below "C"). Thus, the addition of 40 truck trips per day did not deteriorate the LOS.

ACCIDENT SUMMARY

The accident data within the traffic impact study demonstrated that most accidents involve passenger cars, pickup trucks, or other small vehicles. On Highway 14, where accidents exceeded the norm, the majority of these accidents occurred Monday through Friday during daylight hours and were classified as improper turns. According to CALTRANS, this classification accounts for drivers falling asleep at the wheel, and improper passing with ingress and egress. With the exception of Highway 14, the accidents are within reasonable expectations. Each of the reviewing agencies indicated that a maximum of 40 trucks per day would not cause a significant impact.

MITIGATION MEASURES AND CONDITIONS

In order to implement the requested increase in the maximum daily number of allowable truck deliveries of solid fuel, staff recommends modifying the ACE Project Condition of Certification **TRANS-7** as follows (added language shown in double underline, deletions shown in ~~strikeout~~):

TRANS-7 The project owner may arrange for solid fuel to be transported to the ACE facility by truck. Truck deliveries of solid fuel shall be limited to ~~an average of ten deliveries per day~~ a maximum of forty deliveries per day. ~~This average shall be computed by dividing the total number of truck trips during any calendar month by the number of days in that calendar month. The maximum number of truck deliveries in any single day shall be limited to 20.~~

Verification: The project owner shall maintain a log of truck deliveries of solid fuel for use at the ACE facility which shall be made available to the CPM for inspection upon request.